COMPUTING INTERVAL PARAMETER BOUNDS FROM FALLIBLE MEASUREMENTS USING SYSTEMS OF NONLINEAR EQUATIONS

ABSTRACT

One embodiment of the present invention provides a system that computes interval parameter bounds from fallible measurements. During operation, the system receives a set of measurements $z_1, \ldots, z_n$, wherein an observation model describes each z_i as a function of a p-element vector parameter $\mathbf{x} = (x_1, \ldots, x_p)$. Next, the system forms a system of nonlinear equations $z_i - h(\mathbf{x}) = 0$ ($i=1, \ldots, n$) based on the observation model. Finally, the system solves the system of nonlinear equations to determine interval parameter bounds on $\mathbf{x}$.